Rexroth
Bosch Group

4/2 Directional valve elements with or without secondary relief valves, with or without LS connections, and with 2/2 solenoid cartridge valve

RE 18300-54/07.12 1/8
Replaces: 10.09

B8_58… (EDBZ-VEI)

Size 4
Series 00
Maximum operating pressure 310 bar *[4500 psi]*
Maximum flow 25 l/min *[6.6 gpm]*
Port connections G 3/8 - SAE6 - M16x1.5


DVI0076

Summary

General specifications

- Valve elements with 4 ways and 2 positions.
- Control spools directly operated by solenoids with removable coils.
- In the de-energized condition, the control spool is held in the central position by return spring.
- Wet pin tubes for DC coils, with push rod for mechanical override; burnish surface treatment.
- Manual override (push-button or screw type) available as option.
- Additional solenoid cartridge 2/2, NO or NC, single locking or dual locking on port A.

Ordering Details

B	8	_	5 8	E 4 0 1	_ _	_ _	_	_	_	_

Family
Directional valve element EDB

Type
Size 4

Configuration
Standard = 0
With secondary valve on A = 1
With ch. for Load Sensing = 4

Coil type
C36

Spool Variants
4/2 operated on side b only

Voltage supply

Without coil	■			= 00
12V DC		■	■	= OB
24V DC		■	■	= OC
(21.5 DC) 24V AC		■		= OV
(98 DC) 110V AC		■		= OW
(207 DC) 230V AC		■		= OZ
	00	01	03	07
	Available connections			

Options
No code = No options
0 = Standard
P = Push-button type manual override
F = Screw type manual override

Solenoid screw-in cartridge VEI
N = Without valve
C = Normally closed
A = Normally open
D = Dual locking normally closed
O = Dual locking normally open

Secondary valve setting*
0 = 50-210bar *[725-3045psi]*
1 = 100-310bar *[1450-4500psi]*
2 = 25-50bar *[362-725psi]*
3 = Without secondary valve

Ports
3 = G 3/8 DIN 3852
U = M 16x1,5 DIN 3852
B = 9/16-18 UNF 2-B (SAE6)

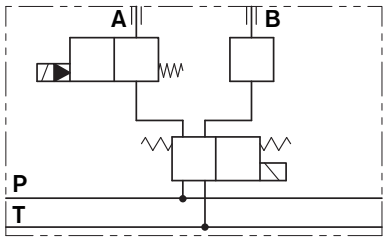
Electric connections
00 = Without coils
01** = With coils, without mating connector DIN EN 175301-803
03 = With coils, with bi-directional diode, without mating connector vertical Amp-Junior
07 = With coils, with bi-directional diode, without mating connector DT04-2P

* VEI solenoid cartridge must be ordered separately.

** For connectors ordering code see data sheet RE 18325-90.

The secondary valves have a maximum flow capacity of 6 l/min. *[1.6 gpm]*.

Configuration



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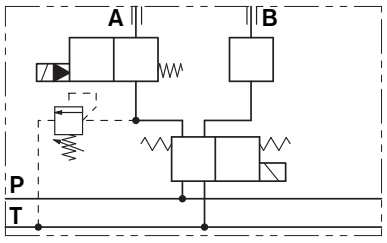

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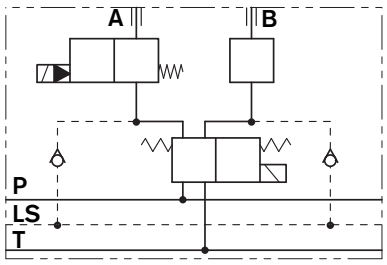

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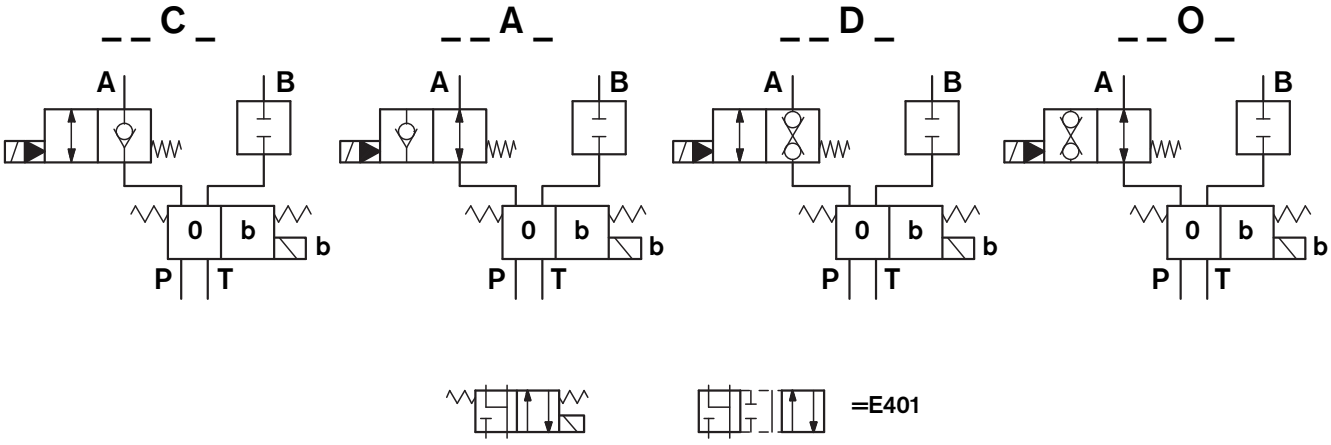
Spool variants



Principles of operation, cross section

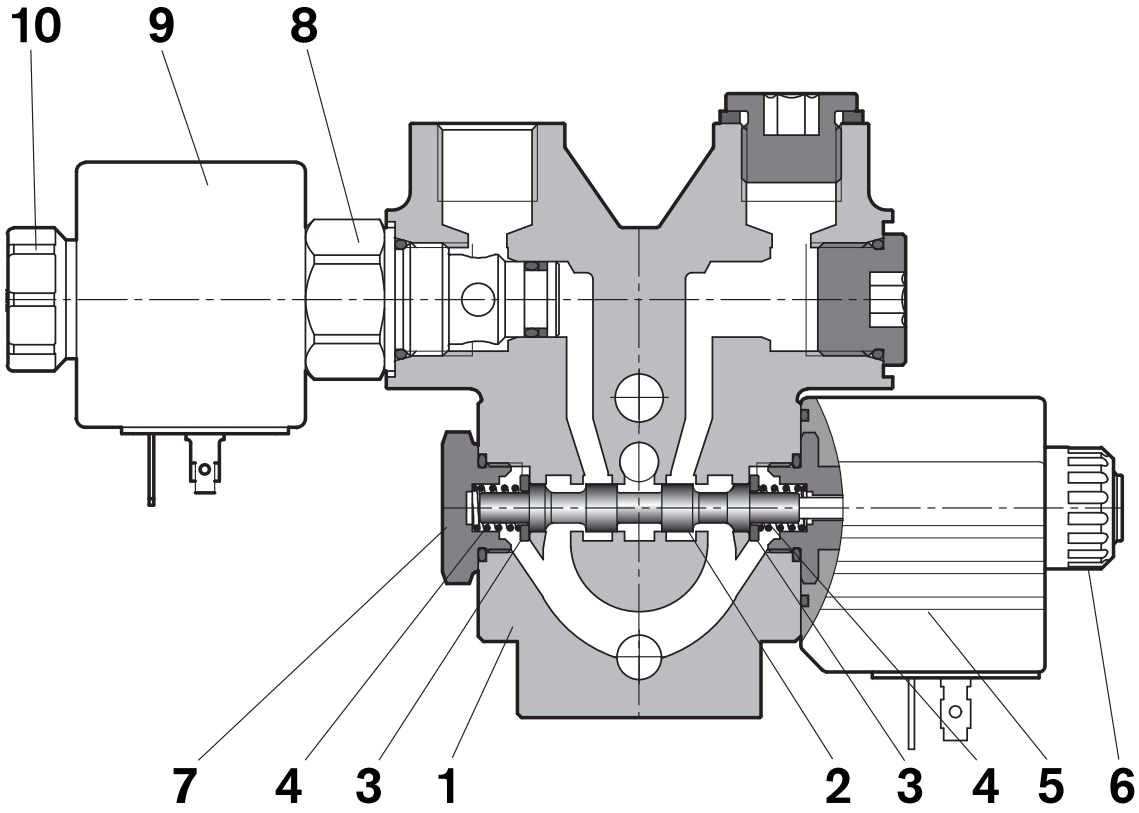
The sandwich plate design directional valve elements B8_58… are very compact direct operated solenoid valves which control the start, the direction and the leak free stop the oil flow. These elements basically consist of a stackable housing (1) with a control spool (2), one solenoid (5), a spring holder plug (7); two return springs (4); a solenoid screw-in cartridge VEI (8) with its coil (9).

When energized, the force of the solenoid (5) pushes the control spool (2) from its rest position “0” to the end position “b”. If there is a solenoid cartridge VEI (8) type C, A, O, the oil flow goes directly to the port A; if there is a solenoid cartridge VEI (8) type D (Dual locking), it is necessary the energize the solenoid cartridge as well in order to allow the oil flow to the port A.

Once the solenoid (5) is de-energized, the return spring (4) pushes the spool thrust washer (3) back against the housing and the spool (2) returns in its rest position. The leak free holding at port A is provided by energizing (or de-energizing, if the VEI is NC type) the solenoid cartridge.

By energizing open the VEI (8) (“C“ and “A“ versions), the A port is open to tank and downstream flow is possible.

The coils are fastened to the respective solenoids (5) and VEI (8) by the ring nuts (6) and (10).



Technical Data (for applications with different specifications consult us)

General

Valve element with solenoid	kg *[lbs]*	1.8 *[3.96]*
Ambient Temperature	°C *[°F]*	–20....+50 *[-4....+122]* (NBR seals)

Hydraulic

Maximum pressure at P and A ports	bar *[psi]*	310 *[4500]*
Maximum pressure at T	bar *[psi]*	250 *[3625]*
Maximum inlet flow	l/min *[gpm]*	25 *[6.6]*
Hydraulic fluid General properties: it must have physical lubricating and chemical properties suitable for use in hydraulic systems such as, for example:		Mineral oil based hydraulic fluids HL (DIN 51524 part 1). Mineral oil based hydraulic fluids HLP (DIN 51524 part 2). For use of environmentally acceptable fluids (vegetable or polyglycol base) please consult us.
Fluid Temperature	°C *[°F]*	–20....+80 *[-4....+176]* (NBR seals)
Permissible degree of fluid contamination		ISO 4572: $\beta_x \geq 75$ X=12...15 ISO 4406: class 20/18/15 NAS 1638: class 9
Viscosity range	mm^2/s	5....420

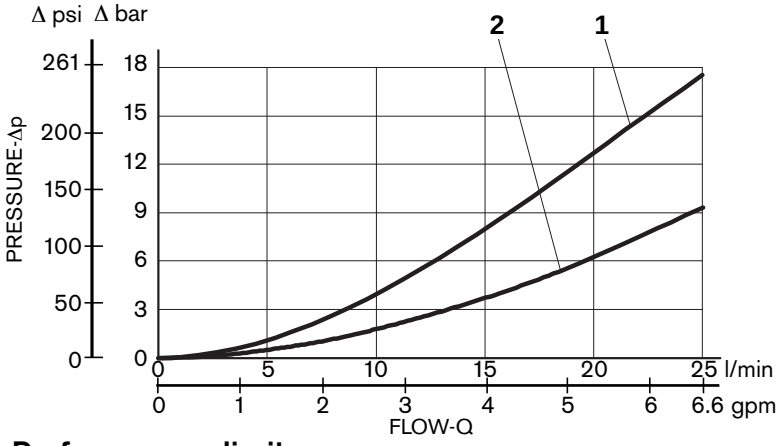
Electrical

Voltage type		DC (AC only with RAC connection)								
Voltage tolerance (nominal voltage)	%	-10 .... +10								
Duty		Continuous, with ambient temperature ≤ 50°C *[122°F]*								
Coil wire temperature not to be exceeded	°C *[°F]*	150 *[302]*								
Insulation class		H								
Compliance with		Low Voltage Directive LVD 73/23/EC (2006/95/EC), 2004/108/EC								
Coil weight	kg *[lbs]*	0.215 *[0.44]*								
Voltage	V	12	24	24 +RAC (21,5)	110 +RAC (98)	230 +RAC (207)				
Voltage type		DC	DC	AC	AC	AC				
Power consumption	W	26	26	29	29	29				
Current (nominal at 20°C *[68°F]*)	A	2.15	1.10	1.20	0.29	0.14				
Resistance (nominal at 20°C *[68°F]*)	Ω	5.5	22	18	338	1430				

	Voltage (V)	Connector type	Coil description	Marking	Coil Mat no.
=OB 01	12 DC	EN 175301-803 (Ex. DIN 43650)	C3601 12DC	12 DC	R933000044
=OB 03	12 DC	AMP JUNIOR	C3603 12DC	12 DC	R933000047
=OB 07	12 DC	DEUTSCH DT 04-2P	C3607 12DC	12 DC	R933000048
=OC 01	24 DC	EN 175301-803 (Ex. DIN 43650)	C3601 24DC	24 DC	R933000053
=OC 03	24 DC	AMP JUNIOR	C3603 24DC	24 DC	R933000057
=OC 07	24 DC	DEUTSCH DT 04-2P	C3607 24DC	24 DC	R933000058
=OV 01	24 RAC	EN 175301-803 (Ex. DIN 43650)	C3601 21.5DC	21.5 DC	R933000054
=OW 01	110 RAC	EN 175301-803 (Ex. DIN 43650)	C3601 98DC	98 DC	R933000060
=OZ 01	230 RAC	EN 175301-803 (Ex. DIN 43650)	C3601 207DC	207 DC	R933000062

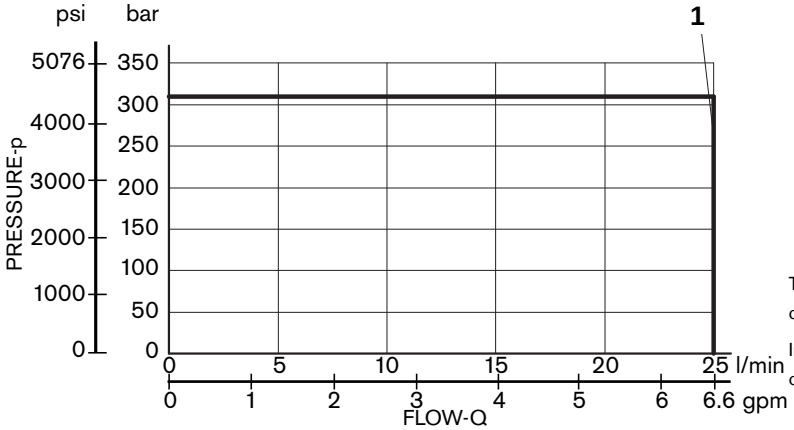
Characteristic curves

Measured with hydraulic fluid ISO-VG32 at 45° ± 5° C *[113° ± 9° F]*; ambient temperature 20° C *[68° F]*.



SPOOL VARIANT	Curve No.	
	B>T	P>A
X301	1	2

Performances limits

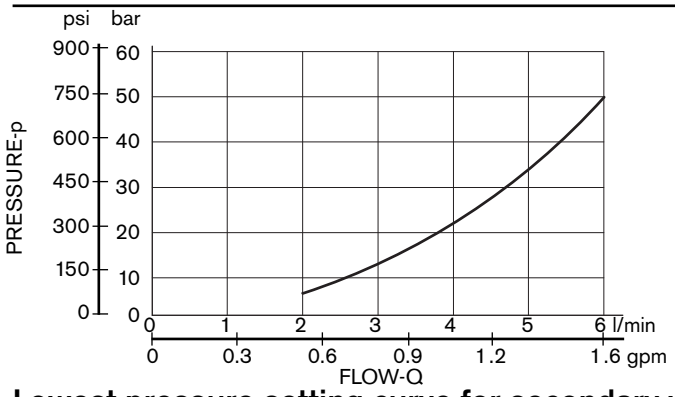


SPOOL VARIANT	Curve No.
X401	1

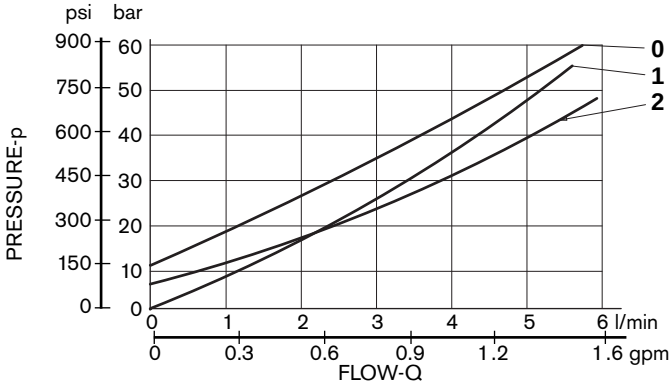
The performance curves are measured with flow going across and coming back, like P>A and B>T, with symmetrical flow areas.

In case of special circuit connections, the performance limits can change.

Minimum flow for efficiency of LS control

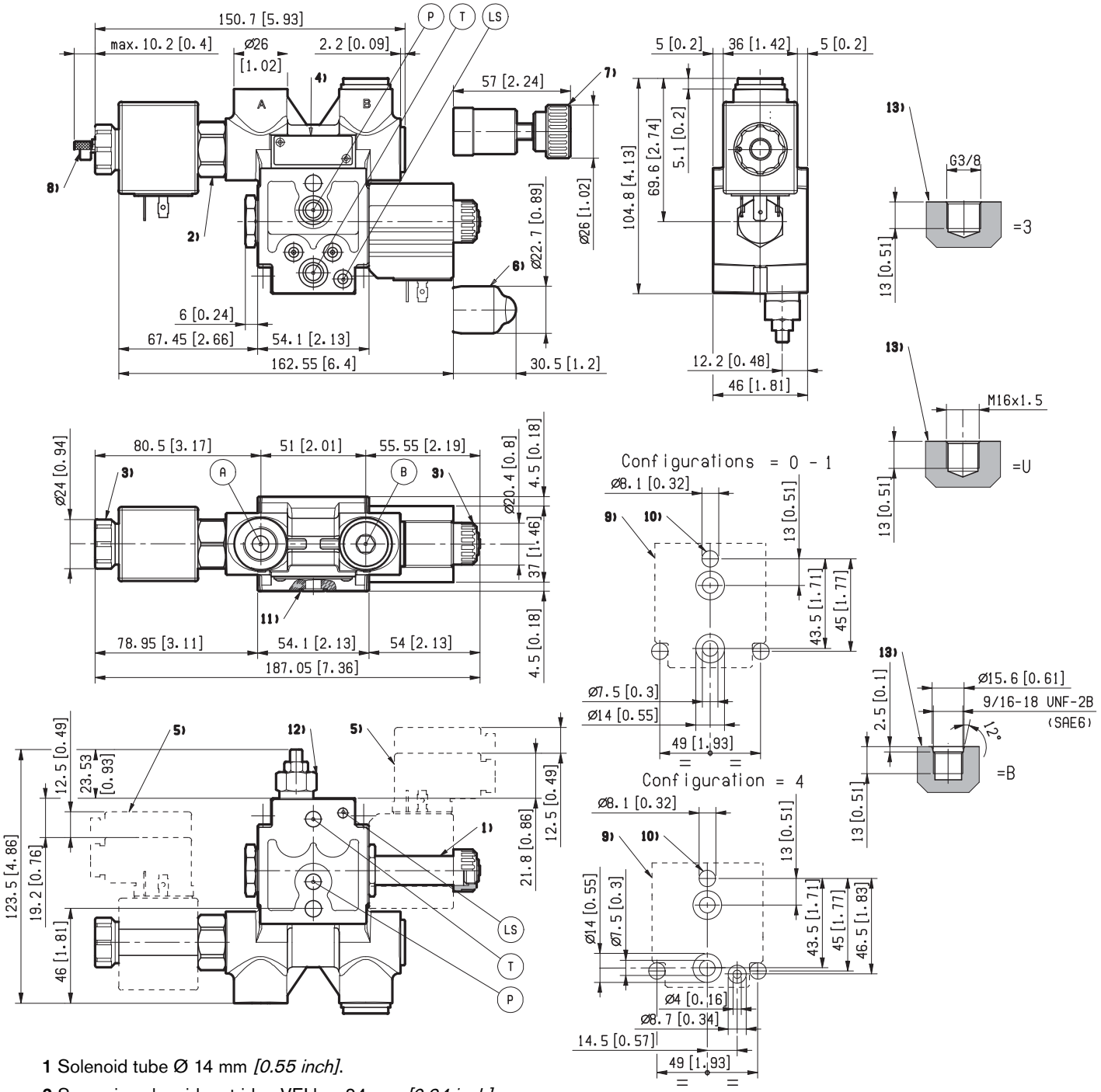


Lowest pressure setting curve for secondary valves



Secondary valve setting	Curve No.
50-210 bar *[700-2950 psi]*	0
100-310 bar *[1400-4500 psi]*	1
25-50 bar *[350-700 psi]*	2

External Dimensions and Fittings



1 Solenoid tube Ø 14 mm *[0.55 inch]*.

2 Screw-in solenoid cartridge VEI hex 24 mm *[0.94 inch]*. Torque 39-51Nm *[28.8-37.6 lb-ft]*.

3 Ring nut for coil locking (OD 20.5 mm); torque 3-4Nm *[2.2-3 ft-lb]*.

4 Identification label.

5 Clearance needed for connector removal.

6 Optional push-button manual override, EP type, for spool opening: it is pressure stuck to the ring nut for coil locking. Mat no. R933000042.

7 Optional screw type manual overide, EF type, for spool opening: it is screwed (torque 6-7 *[4.4-5.2 ft-lb]*) to the tube as replacement of the coil ring nut. Mat no. R933006377.

8 Optional manual override for VEI cartridge: it can be push/pull or screw type. Please refer to the VEI catalogue for details.

9 Flange specifications for coupling to ED intermediate elements.

10 For tie rod and tightening torque information see data sheet RE 18301-90.

11 O-Rings for P and T ports.

12 Space needed for secondary valve in configuration 1.

13 A and B ports.

Electric connections

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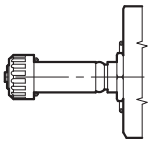

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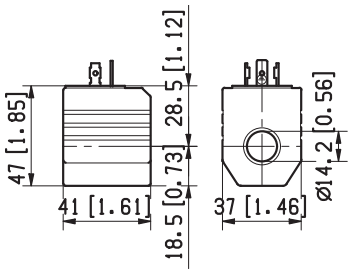

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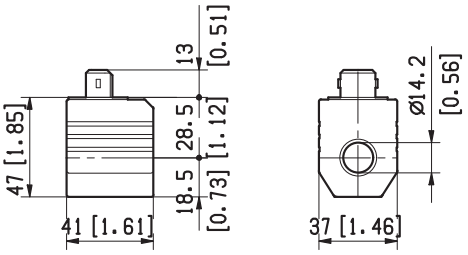
Protection class: IP 65 with female connector properly fitted (see drawing).



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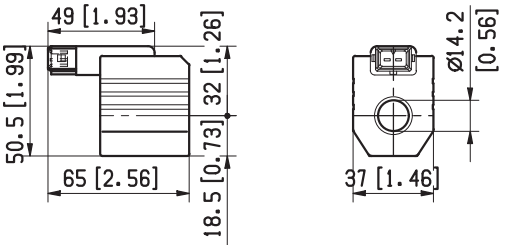
Protection class: IP 65 with female connector properly fitted (see drawing).



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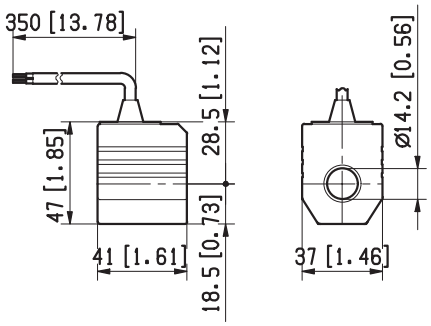

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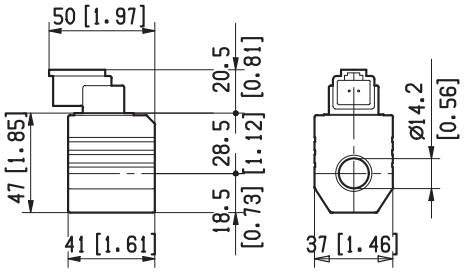
Protection class: IP 69 K with female connector properly fitted (see drawing).



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